



NEWS

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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action.
See MCI v. FCC, 515 F 2d 385 (D.C. Circ 1974).

FOR IMMEDIATE RELEASE:
March 10, 2005

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FCC ADOPTS RULE CHANGES FOR SMART RADIOS

Washington, D.C. – In light of the ever increasing demand for radio spectrum, and to facilitate new technologies and services as well as permit more intensive and efficient spectrum use, the Federal Communications Commission today adopted rule changes for cognitive, or “smart,” radio systems. This action will facilitate continued growth in the deployment of radio equipment employing cognitive radio technologies and make possible a full realization of their potential benefits. As a result, consumers will reap the benefit of new and enhanced services.

Given their technical and operational flexibility, smart radios make possible the improved use of vacant spectrum channels – that is, spectrum that may be available in a specific frequency range at a particular geographic location or during a particular period of time – spectrum that would otherwise go unused. Smart radios have the technical capability to adapt their use of spectrum in response to information external to the radio. For instance, a system could use geographic positioning system (GPS) data to determine its exact location, then determine whether certain transmissions are permissible based on that location. Alternatively, such radios could sense their operating or radiofrequency (RF) environment and use this information to determine both the optimal frequency range and transmit power to use, yet avoid harmful interference. Many smart radios can also interpret and transmit signals in different formats or modulation schemes in an effort to transmit without harming others in the vicinity.

Certain smart radio capabilities are employed to a more limited extent today in applications such as commercial mobile wireless services and wireless local area networks (WLANs). In some instances, military applications are fueling leading edge research and serving as the impetus for growth in the commercial deployment of software defined and cognitive radios. Eventually, radios that sense the environment to determine a series of possible actions and compare this array of choices with actions that have been successful in the past to select an appropriate action in the current situation.

Active efforts are currently underway both in industry forums and standards bodies to adopt internationally accepted standards for software defined and cognitive radios.

In this item, the Commission modified and clarified certain authorization requirements for software defined and cognitive radios to facilitate the development of these technologies. It required that radios that incorporate software designed to be, or expected to be, modified by a

party other than the manufacturer provide reasonable security measures to prevent unauthorized software modifications that would either affect the RF operating parameters directly or otherwise indirectly affect the circumstances under which the transmitter operates in accordance with Commission rules.

The Commission substituted, at the time of certification, the requirement that the manufacturer of a software defined radio supply software “source code” with the requirement that a manufacturer supply a high level operational description of the software that controls the radio’s RF characteristics, and a description of the software security measures employed to prevent unauthorized modifications. It also clarified the rules to permit manufacturers to market radios that have the hardware-based capability to transmit outside authorized United States frequency bands, but required software controls to limit operation to authorized frequency bands when used in the United States.

Finally, the Commission concluded that there are technical measures that cognitive radios can employ that will allow reliable secondary use of spectrum, yet maintain both the availability of the spectrum and its rapid reversion to the licensee when needed, but saw no need to adopt any particular technical model for interruptible spectrum leasing.

Action by the Commission March 10, 2005, by Report and Order (FCC 05-57).
Chairman Powell, Commissioners Abernathy, Copps, Martin, and Adelstein. Commissioner Adelstein issued a separate statement.

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ET Docket No. 03-108